Remarks

This paper is responsive to the non-final office action of January 20th, 2011. All rejections and objections of the Examiner are traversed. Reconsideration of pending claims is respectfully requested.

Claims

Claims 1-19, 21-26, and 31-38 are pending in this application.

Claims 20 and 27-30 and 39 were previously canceled.

Claims 31-38 have been canceled without prejudice.

The amended claim in this paper conforms to 37 CFR 1.121, 1.125 (b) and (c), and MPEP § 714.

The rejection under 35 USC §112

Claims 31-38 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 31-38 have been canceled without prejudice.

The rejection under 35 USC §101

Claims 31-38 have been rejected under 35 U.S.C. 101 because the Examiner asserts that the claims are directed to non-statutory subject matter.

Claims 31-38 have been canceled without prejudice.

Examiner's Response to Arguments

On page 64 of the action, the Examiner states that Applicant's arguments regarding "engineering" and "validating and calibrating" are moot in view of a new grounds of rejection.

Applicant's arguments to the Examiner's Response to Arguments

The Examiner asserts that the Applicant's arguments (in the Applicant's response dated 14 July 2010 (hereinafter referred to as **the referenced response**)) regarding "engineering" and "validating and calibrating" are moot because Bowman-Amuah, Michel K., U.S. Patent Number US 6,611,867 (hereinafter referred to as **Bowman-Amuah**) is cited as a new prior art reference for a new grounds of rejection.

The Bowman-Amuah reference does not teach "*engineering*" or "*validating and calibrating*", as will be discussed below.

The claimed invention:

The claimed invention discloses a computer program product comprising a computer-readable medium having stored thereon instructions for causing a computer to perform a process for assessing business solutions comprising *two levels of networks*, (paragraphs [0060]-[0069], [0070]-[0077], and [0144]-[0157]; and Figures 1, 2, and 17 of the present application).

The present application discloses and claims engineering of *two levels of networks*; determining the costs for the *two levels of networks*; and validating and calibrating data, options, and costs for the *two levels of networks*, wherein the two levels of networks comprise:

(1) ***a network architecture***, which carries telecommunications services (e.g., voice, data, video, etc.) and delivers the services to end users, (paragraphs [0086]-[0100], and [0145]; Figures 5-7; and claims 1-3, 5 and 8-14 of the present application). Examples of network architectures are shown in Figures 3 and 4 and others are described in paragraphs [0158]-[0163] of the present application; and

(2) ***a management network*** for managing the network architecture of (1) above, wherein the management network comprises management processes and sub-processes for network, service, and customer management. The network, service, and customer management

processes and sub-processes are *modeled and engineered* based on the network operations management for Service Providers, (paragraphs [0101]-[0132] and [0136]-[0138]; Figures 8-14; and claims 1-3, 6, 15-19, and 21-26 of the present application).

The computer-readable medium encoded with the computer program product contains instructions for causing the computer to receive data and options, (paragraphs [0134], [0135], and [0139]-[0143]; and Figures 14-16 of the present application), for plurality of network architectures, network management processes, and service and customer management processes for business solutions for a telecommunications network; engineer (determine the costs for; and validate and calibrate data, options, and costs for) the plurality of network architectures, network management processes, and service and customer management processes; determine business parameters for the business solutions; and store and display the business parameters for the business solutions for the telecommunications network.

The options comprise technology alternatives for the network architectures and choices for the network, service, and customer management processes and sub-processes for managing the network architectures for the business solutions.

Accordingly, the management processes for a mesh network architecture (e.g., Figure 3 of the present application) or ring network architecture (e.g., Figure 4 of the present application) are selected and defined, based on the received data and options, for the network architectures, network management processes, and service and customer management processes. These management processes and sub-processes are *engineered* for managing the network architecture; and the costs are determined for the engineered management processes and sub-processes. The management processes comprise network management processes and service and customer management processes and their associated sub-processes that replicate today's network operations management for Service Providers.

The computer program product which comprises a computer-readable medium having stored thereon instructions for causing a computer to perform a process for assessing business solutions comprising *two levels of networks* would result in:

Firstly, a network architecture, which comprises multiple network elements (such as switches, routers, add/drop multiplexes, etc.) and links connecting these network elements to each other using network planning and engineering principles, (paragraphs [0086]-[0100], and [0145]; Figures 5-7; and claims 1-3, 5 and 8-14 of the present application); and

Secondly, a management network for managing the network architecture engineered above. The engineering of a management network (that is, engineering of the network operations management) comprises engineering of processes and sub-processes and their tasks for network, service, and customer management.

Engineering the management processes is clearly stated in the present application, as shown in module 130 of Figure 1. The engineering is done based on options 220 and data module 270 of Figure 2. The method step (block 1735) of Figure 17 shows the engineering of the management processes. Accordingly, the engineering of the management processes is a *key feature* of the computer program product claimed in the present invention.

The sub-processes for each management process in Figure 2 are further configured in Figures 8 to 14. Each sub-process is provisioned by multiple of tasks as detailed in paragraphs [0101]-[0132]; and claimed in claims 1-3, 6, 15-19, and 21-26 of the present application.

Accordingly, the engineering of the management processes would result in multiple network, service and customer management processes (or as referred to in the industry, operations support systems (OSS)) for network, service and customer management, (paragraph [0106] of the present application), for managing the engineered network architecture.

The engineering of the management processes implies configuring the OSS by identifying the processes and sub-processes within the OSS for performing specific functionality including customer relationship management (CRM), work order management (WOM), network inventory management (NIM), service activation and provisioning (SAP), fault management (FM), performance management (PM), accounting and billing, and security management; and provisioning these processes (that is, the processes of the CRM, WOM, NIM, SAP, FM, PM, etc.) by determining the tasks within each process and sub-process, as described in paragraphs [0101]-[0132] of the present application.

The engineering of the management processes and sub-processes, which form and replicate the network operations management systems (or OSS) for network, service, and customer management, is a *key feature* of the present invention. Figure 18 of the present application illustrates the contribution of the network, service and customer management processes and sub-processes costs, (that is, the costs of the processes and sub-processes of the network operations management), to the network architecture cost.

Network management options (module 222 of Figure 2) and service and customer management options (module 223 of Figure 2) configure (that is, construct, build up, shape or form) the processes within each system (or OSS) and the tasks described in paragraphs [0101]-[0132] provision (that is, define the specification of) each process and sub-process within each system.

Accordingly, limitations (d), (e) and (f) of independent claim 1, where: (d) *engineering* the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures; (e) *determining* suppliers' management processes costs for the network management processes and the service and customer management processes; and (f) *validating and calibrating* the data and options and the costs for the plurality of network architectures, the network management processes, and the service and customer management processes, respectively, are *key features* of the claimed invention.

The Bowman-Amuah reference:

Bowman-Amuah at (ABSTRACT and column 2, SUMMARY OF THE INVENTION) states:

"A system, method and article of manufacture are provided for implementing a hybrid network. Orders for network capacity are issued based on a forecasted demand in order to develop a hybrid network. The hybrid network is analyzed to identify network problems. Then, the hybrid network is provisioned in accordance with the network problems and service requests. Usage of the hybrid network is determined and network usage control functions are initiated based on the determined usage.

In one embodiment of the present invention, provisioned portions of the hybrid network are assigned identifiers. Hardware of the hybrid network may be managed by performing duties including installing the hardware of the hybrid network, performing work on the hardware of the hybrid network, and/or repairing the hardware of the hybrid network. Further, historic data of the network problems may be maintained, such as in a log. A notification of the usage of the hybrid network may be provided if the usage is above a predetermined amount.

Optionally, sub-processes may be **used** to support the method for implementing the hybrid network. Such sub-processes include network capacity/trunk planning, software and data building management, scheduling management, logistics management, workforce management, security management, problem analysis and resolution, network performance monitoring and analysis, network traffic monitoring and analysis, network configuration and routing, network test management, network alarm and event correlation, and network usage data collection and consolidation".

Accordingly, Bowman-Amuah reference discloses a system, method and article of manufacture for implementing *one level of network*, that is, a hybrid network, which carries telecommunications services (e.g., voice, data, video, etc.) and delivers the services to end users, (column 83, lines 43-64 and FIG. 50). Bowman-Amuah at (column 8, lines 10-30) teaches a hybrid architecture, which supports both circuit-switched (voice) and packet-switched (data) traffic to enable Service Providers to launch many new broadband data services. The hybrid network comprises multiple network elements (such as switches, routers, add/drop multiplexes, etc.) and links connecting these network elements to each other, as shown in FIGs 51-56 of the Bowman-Amuah reference.

Bowman-Amuah at (column 67, lines 31-67; columns 68- 82; column 83, lines 1-42; and FIGs 22- 49) discusses functions and processes of ITU-T TMN standards (column 68 and line 12) and Telecommunications Operations Map framework (column 74, lines 44-45), which are *well known to one of ordinary skill in the art.*

Bowman-Amuah at (column 13, lines 59-67 and column 14, lines 1-4) states "Service Providers are already outsourcing or plan to outsource their ongoing network operations management". Hence, Bowman-Amuah takes for grant that the processes of the network operations management already exist because Service Providers procure their network operations management processes or systems (that is, network, services and customer management processes and sub-processes) from third party network operations management processes' suppliers.

Bowman-Amuah at (column 2, lines 33-42; column 83, lines 65-67; and column 84, lines 1-6) states that, optionally, sub-processes may be **used** to support the method for implementing the hybrid network. Such sub-processes include network capacity/trunk planning,

software and data building management, scheduling management, logistics management, workforce management, security management, problem analysis and resolution, network performance monitoring and analysis, network traffic monitoring and analysis, network configuration and routing, network test management, network alarm and event correlation, network usage data collection and consolidation, as claimed in claims 6, 12 and 18 of the Bowman-Amuah reference.

Accordingly, the method for implementing the hybrid network *does not engineer* any processes covering "Customer Care 2200, Service Management 2202 and Network Management 2204" (Bowman-Amuah at (FIG. 22 and column 67, lines 31-60)) or sub-processes including network capacity/trunk planning, software and data building management, scheduling management, logistics management, workforce management, security management, problem analysis and resolution, network performance monitoring and analysis, network traffic monitoring and analysis, network configuration and routing, network test management, network alarm and event correlation, network usage data collection and consolidation, (Bowman-Amuah at (column 2, lines 33-42; column 83, lines 65-67; column 84, lines 1-6; and claims 6, 12, and 18)). Bowman-Amuah reference only discusses the **use** of these processes and sub-processes for implementing the hybrid network.

There is no mention or suggestion of engineering processes of network operations management covering "Customer Care 2200, Service Management 2202 and Network Management 2204" (Bowman-Amuah at (FIG. 22; and column 67, lines 31-60)) for managing the hybrid network. Claims 6, 12 and 18 of the Bowman-Amuah reference claim the **use of sub-processes** including network capacity/trunk planning, software and data building management, scheduling management, logistics management, workforce management, security management, problem analysis and resolution, network performance monitoring and analysis, network traffic monitoring and analysis, network configuration and routing, network test management, network alarm and event correlation, and network usage data collection and consolidation. Hence, there is no mention or suggestion of the engineering of these processes or sub-processes in the Bowman-Amuah reference.

The Bowman-Amuah reference key feature is to engineer a hybrid network that offers various services (e.g., voice, data, video, etc) over various technologies (e.g., TDM, IP, ATM, etc.). Bowman-Amuah reference at (column 83, lines 55-64 and Claims 3, 9, and 15) teaches

functions relevant to installing the hardware of the hybrid network, performing work on the hardware of the hybrid network, and/or repairing the hardware of the hybrid network.

Consequently, the Bowman-Amuah reference does not teach "*engineering*" any management processes or sub-processes. Moreover, "*engineering*" the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures", which is limitation (d) of independent claim 1 of the claimed invention, **is not found anywhere** in the Bowman-Amuah reference.

Bowman-Amuah reference *does not* determine the costs for any network operations management processes covering "Customer Care 2200, Service Management 2202 and Network Management 2204" (Bowman-Amuah at (FIG. 22 and column 67, lines 31-60)) or sub-processes which include network capacity/trunk planning, software and data building management, scheduling management, logistics management, workforce management, security management, problem analysis and resolution, network performance monitoring and analysis, network traffic monitoring and analysis, network configuration and routing, network test management, network alarm and event correlation, and network usage data collection and consolidation (Bowman-Amuah at (column 2, lines 33-42; column 83, lines 65-67; column 84, lines 1-6; and claims 6, 12, and 18)). Bowman-Amuah reference only discusses the **use** of these processes and sub-processes for implementing the hybrid network.

Bowman-Amuah reference only discusses the **use** of selected sub-processes of the processes of the ITU-T TMN standards and Telecommunications Operations Map framework, which are relevant to implementing the hybrid network (that is, installing the hardware of the hybrid network, performing work on the hardware of the hybrid network, and/or repairing the hardware of the hybrid network, as claimed in claims 3, 9, and 15 of the Bowman-Amuah reference). The processes of the ITU-T TMN standards and Telecommunications Operations Map framework are *well known to one of ordinary skill in the art.*

Accordingly, "determining suppliers' management processes costs for the network management processes and the service and customer management processes", which is limitation (e) of independent claim 1 of the claimed invention, **is not found anywhere** in the Bowman-Amuah reference.

Bowman-Amuah reference ***does not engineer (or determine the costs for)*** any network operations management processes or sub-processes for managing the hybrid network. As before, Bowman-Amuah reference only discusses the **use** of these sub-processes, as claimed in claims 6, 12 and 18 of the Bowman-Amuah reference, for implementing the hybrid network. The processes and sub-processes, which are taught by Bowman-Amuah, are processes of the ITU-T TMN standards and Telecommunications Operations Map framework and are *well known to one of ordinary skill in the art.* Hence, the Bowman-Amuah reference ***does not validate or calibrate*** any data, options or costs for any network operations management processes or sub-processes for managing the hybrid network.

Consequently, the Bowman-Amuah reference does not teach "*validating and calibrating*" any data, options, or costs for management processes or sub-processes. Moreover, "*validating and calibrating*" the data and options and the costs for the plurality of network architectures, the network management processes, and the service and customer management processes", which is limitation (f) of independent claim 1 of the claimed invention, **is not found anywhere** in the Bowman-Amuah reference.

To sum up, limitations (d), (e) and (f) of independent claim 1 of the claimed invention, where: (d) *engineering* the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures; (e) *determining* suppliers' management processes costs for the network management processes and the service and customer management processes; and (f) *validating and calibrating* the data and options and the costs for the plurality of network architectures, the network management processes, and the service and customer management processes, respectively, **are not found anywhere** in the Bowman-Amuah reference.

Applicant arguments regarding the claims rejection under 35 USC 103

Claims 1-10, 31-36, and 38:

On page 7 of the action, claims 1-10, 31-36, and 38 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Ngi et al., U.S. Patent Application Publication Number 2003/0158765 A1 (hereinafter referred to as **Ngi**) in view of Bowman-Amuah, Michel K., U.S. Patent Number US 6,611,867 (hereinafter referred to as **Bowman-Amuah**), and further in view of EURESCOM Project P901-PF Extended investment analysis of telecommunication operator strategies (hereinafter referred to as **EURESCOM**):

Deliverable 1: Investment analysis framework definition and requirements specification (hereinafter referred to as **D1**), and

Deliverable 2: Investment Analysis Modeling (hereinafter referred to as **D2**).

Regarding claims 1-10, 31-36, and 38

Claims 31-36 and 38 have been canceled without prejudice.

The combination of Ngi, Bowman-Amuah, and EURESCOM (D1 Volume 2 and D2 Volume 1 and Volume 2) references **does not** produce the limitations in claims 1-10 of the claimed invention, as will be described below.

The Ngi reference

Ngi discloses and claims an end-to-end network analysis tool for engineering *one level of network*, that is, a network architecture (e.g., an optical network), which carries telecommunications services (e.g., voice, data, video, etc.) and delivers the services to end users, (Abstract; paragraphs [0007], [0015], [0018], [0021]-[0023], [0031]-[0033], [0055], [0060]-[0073], [0075], [0083], [0096]-[0098], [0100]-[0107], and [0110]-[0114]; and Figures 14-16 of the Ngi reference).

Ngi at (paragraphs [0119]-[0124]; Table 2; and Figures 17A, 17B, and 18) discusses operational costs, which are relevant to the costs of the network architecture and technology (e.g., architecture costs to build, own, and grow).

On page 6 of the office action dated April 29th, 2010, the Examiner (Examiner ANTONIENKO, DEBRA L) acknowledges that Ngi *does not* disclose limitations (c), (d), (e), and (f) of independent claim 1 of the claimed invention, where (c) determining suppliers' equipment costs for said plurality of network architectures; (d) engineering the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures; (e) determining suppliers' management processes costs for the network management processes and the service and customer management processes; and (f) validating and calibrating the data and options and the costs for the plurality of network architectures, the network management processes, and the service and customer management processes, respectively.

On page 14 of the present office action, the Examiner acknowledges that Ngi *does not* teach limitation (d) of independent claim 1 of the claimed invention.

On pages 26, 46, 49, 52, 54, 56, 58, 60, and 62 of the present office action, the Examiner acknowledges that Ngi *does not* engineer the network management processes and service and customer management processes or their associated sub-processes, as claimed in claims 6, 16, 18 and 21-26, which define additional elements for limitation (d) of independent claim 1 of the claimed invention.

On pages 17 and 44 of the present action, the Examiner acknowledges that Ngi *does not* disclose the specific management processes costs for the network management processes, and the service and customer management processes.

On pages 19 and 51 of the present action, the Examiner acknowledges that Ngi *does not* disclose the specific management processes.

Moreover, on pages 43, 44, 47, 51, 52, 54, 56, 58, 60, and 62 of the present action, the Examiner acknowledges that Ngi *does not* disclose determining the network management processes cost and the service and customer management processes cost or the costs of the sub-processes of the network management processes and the service and customer management processes, as claimed in claims 15, 17, 19, and 21-26, which define additional elements for limitation (e) of independent claim 1 of the claimed invention.

Regarding claim 1:

On page 14 of the action, the Examiner acknowledges that Ngi *does not* disclose (d) engineering the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures, (which is limitation (d) of independent claim 1 of the claimed invention).

However, the Examiner asserts that Bowman-Amuah teaches (d) engineering the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures.

The Examiner cites Bowman-Amuah (column 67, lines 31-60, a number of operations management processes are shown to be provided covering Customer Care 2200, Service Management 2202 and Network Management 2204… The modeling of the Network Management processes 2204 and functions is based on the following considerations: top-down decomposition of Service Management needs to guide the structuring of processes and to identify the supporting functions within Function Set Groups. ….Network Management processes 2204, and the process flows that link these, have been derived from discussions and interviews with business planning and operational staff in a number of Service Providers and represent a business-oriented (top-down) view of the structure of the Network Management Layer; column 68, lines 33-67, an analysis of the information flows is needed to guide the structuring of the overall operational environment into major processes, and to identify the contents and linkages between them; column 79, lines 58-67, the high level processes set forth hereinabove may be decomposed into optional sub-processes, which may be linked together in `work strings` (for instance by using workflow engines).

Neither Ngi nor Bowman-Amuah teaches (d) engineering the network management processes and the service and customer management processes, based on the received data and options, for managing the plurality of network architecture:

As previously discussed, Ngi *does not* disclose limitation (d) of independent claim 1 of the claimed invention, (as acknowledged on page 6 of the office action dated April 29th, 2010 and on page 14 of the present office action).

Ngi *does not* engineer the network management processes and service and customer management processes or their associated sub-processes, as claimed in claims 6, 16, 18 and 21-26, which define additional elements for limitation (d) of independent claim 1 of the claimed invention, (as acknowledged on pages 26, 46, 49, 52, 54, 56, 58, 60, and 62 of the present office action).

Bowman-Amuah at (Abstract and column 8, lines 10-30) discloses and claims a system, method and article of manufacture for implementing *one level of network*, that is, "a hybrid network", which supports both circuit-switched (voice) and packet-switched (data) traffic to enable Service Providers to launch many new broadband data services. The hybrid network comprises multiple network elements (such as switches, routers, add/drop multiplexes, etc.) and links connecting these network elements to each other, as shown in FIGs 51-56 of the Bowman-Amuah reference.

Bowman-Amuah at (column 2, lines 33-42; column 83, lines 65-67; and column 84, lines 1-6) states that optionally, sub-processes may be **used** to support the method for implementing the hybrid network. Such sub-processes include network capacity/trunk planning, software and data building management, scheduling management, logistics management, workforce management, security management, problem analysis and resolution, network performance monitoring and analysis, network traffic monitoring and analysis, network configuration and routing, network test management, network alarm and event correlation, network usage data collection and consolidation, as claimed in Claims 6, 12 and 18 of the Bowman-Amuah reference. Hence, Bowman-Amuah reference does not engineer these sub-processes because Bowman-Amuah reference takes for grant that the processes and sub-processes of the network operations management for Service Providers are *already exist* or *outsourced* to network operations management processes' suppliers.

Bowman-Amuah only discusses processes **used** by Service and Network providers, (FIG. 22 of Bowman-Amuah reference). These processes are processes of the ITU-T TMN standards and Telecommunications Operations Map framework and *well known in the art.* Bowman-Amuah reference only discusses the **use** of sub-processes of the processes of the ITU-T TMN standards and Telecommunications Operations Map framework for implementing the hybrid network, as claimed in claims 6, 12 and 18 of the Bowman-Amuah reference.

Bowman-Amuah at (columns 67, lines 31-67; columns 68- 82; column 83, lines 1-42; and FIGs 22- 49) discusses the processes of the ITU-T TMN standards (column 68, line 12) and Telecommunications Operations Map framework (column 74, lines 44-45), which are *well known in the art*. These sections include the Examiner's cited sections: column 67, lines 31-60; column 68, lines 33-67; and column 79, lines 58-67.

Each cited section is copied below in its entirety to make evident that the Bowman-Amuah reference is only discussing the processes of the ITU-T TMN standards and Telecommunications Operations Map framework and does not engineer any processes or sub-processes of the network operations management for managing the hybrid network.

Bowman-Amuah at (column 67, lines 31-60) states:

"FIG. 22 is a simplified view of *processes used by Service and Network Providers*. As shown in FIG. 22, a number of *operations management processes* are shown *to be provided* covering Customer Care 2200, Service Management 2202 and Network Management 2204.

It should be realized that the physical implementation of the management systems may not reflect this strict segmentation between Service and Network Management systems 2202, 2204. Providers and Operators may make their own decisions on the location within their management environment of applications that interoperate using the agreed information flows according to their own business judgment.

Network Management processes 2204 will now be identified and each process is mapped onto its component functions. The modeling of the Network Management processes 2204 and functions is based on the following considerations:

top-down decomposition of Service Management needs to guide the structuring of processes and to identify the supporting functions within Function Set Groups.

positioning of the Network Management processes and functions within a layered management architecture.

Network Management processes 2204, and the *process flows* that link these, have been derived from discussions and interviews with business planning and operational staff in a number of Service Providers and represent a *business-oriented (top-down) view of the structure of the Network Management Layer*. The *Function Set Groups are drawn from* ***standards*** and

reflect a structure and terminology which may also be familiar to operational and planning staff."

In the cited text above, there is no mention or suggestion of *engineering the processes covering* "Customer Care 2200, Service Management 2202 and Network Management 2204". The number of operations management processes which are shown in FIG. 22 provides a simplified view of processes **used** by Service and Network Providers. The "Customer Care 2200, Service Management 2202 and Network Management 2204" *are provided* (that is, presented, granted) for implementing the hybrid network. These processes are processes of the ITU-T TMN standards and Telecommunications Operation Map framework, as stated in Bowman-Amuah at (column 68, line 12 and column 74, lines 44-45) and shown in FIGs 22 – 49 of the Bowman-Amuah reference. The processes of the ITU-T TMN standards and Telecommunications Operation Map framework are *well known in the art*.

Bowman-Amuah *does not* teach engineering the processes covering "Customer Care 2200, Service Management 2202 and Network Management 2204" because "Service Providers are already outsourcing or plan to outsource their ongoing network operations management", as stated in Bowman-Amuah at (column 13, lines 59-67 and column 14, lines 1-4).

Bowman-Amuah takes for grant that the processes covering Customer Care 2200, Service Management 2202 and Network Management 2204 *already exist* in the network operations management environment for Service Providers. Bowman-Amuah may **use** sub-processes of these processes for implementing the hybrid network, as claimed in claims 6, 12, and 18 of the Bowman-Amuah reference.

The "discussions and interviews with business planning and operational staff" does not *engineer* the processes covering "Customer Care 2200, Service Management 2202 and Network Management 2204" for managing the hybrid network. No models or claims for engineering a management network (that is, network operations management), which comprises processes covering "Customer Care 2200, Service Management 2202 and Network Management 2204" for managing the hybrid network.

Bowman-Amuah at (column 68, lines 33-67) states:

"This function-oriented perspective for understanding the content of processes 2300 supports the "top-down" analysis of processes 2300, by identifying likely target functional capabilities which the processes 2300 *can employ* in carrying out their role. *The overall analysis and design of individual process areas (using techniques such as OMT or UML) may be handled by individual Working Groups, using the Telecoms Operations Map as a common backdrop for their work.*

Initially, an analysis of the information flows is needed to guide the structuring of the overall operational environment into major processes, and to identify the contents and linkages between these. The following steps can be distinguished for the development of processes 2300.

1) Identify Actors. Actors are the external parties providing triggers to the business area to be modeled. What is considered to be external will, of course, depend on what is to be modeled. Furthermore, external parties not providing triggers are not called actors.

2) Describe the different Roles each actor can perform.

3) Identify Triggers. Each actor in a certain role can provide and receive several triggers. Start with the triggers provided by the actors and model the triggers received by the actors after modeling the process flow-through.

4) Identify reaction to triggers. What sequence of activities (flow-through) will take place in response to the trigger?

Grouping of activities. All reactions to all triggers can be grouped together in sets of activities. These sets are called the business processes.

Processes 2300 are distinguished within a management layer (such as Network Management) because they represent a major area of operational responsibility, and provide a clean separation of concerns between individual processes. In terms of TMN management layers, process flows occur vertically, from the Network Management Layer up to the *Service, or down to Network Element Management Layers, as well as within the Network Management Layer itself. Indeed, the process flows to support the Service Management Layer are one of the primary drivers in this top-down approach to delivering business benefit. Another issue to recognize is that the dynamics of the lifecycle of each of these Layers is likely to be very different and the implications need to be well understood* (column 69, lines 1-8)".

Again, in the cited text above, there is no mention or suggestion of *engineering any processes* covering "Customer Care 2200, Service Management 2202 and Network Management 2204" for managing the hybrid network. Bowman-Amuah may **use** sub-processes of these processes for implementing the hybrid network, as claimed in claims 6, 12, and 18 of the Bowman-Amuah reference.

The cited text discusses the processes of the ITU-T TMN standards and Telecommunications Operations Map framework in terms of management layers, functions, sub-processes, workflows, and lifecycle, which are *well known in the art*. Bowman-Amuah does not engineer any processes covering "Customer Care 2200, Service Management 2202 and Network Management 2204" for managing the hybrid network. No models or claims for engineering a management network which comprises processes covering "Customer Care 2200, Service Management 2202 and Network Management 2204" for managing the hybrid network.

Bowman-Amuah at (column 79, lines 58-67) states:

"FIG. 41 shows how the foregoing three lifecycles interact.

Examples will now be set forth relating to how the high level processes set forth hereinabove may be decomposed into optional sub-processes, which may be linked together in `work strings` (for instance by using workflow engines).

These sub-processes support the high level processes and represent the way providers describe daily tasks they perform, or would ideally like to perform, in managing integrated networks to support automated management of services, delivered to their customers."

Again, in the cited text above, there is no mention or suggestion of *engineering any processes* covering "Customer Care 2200, Service Management 2202 and Network Management 2204" for managing the hybrid network. Bowman-Amuah may **use** sub-processes of these processes for implementing the hybrid network, as claimed in claims 6, 12, and 18 of the Bowman-Amuah reference. No models or claims for engineering a management network which comprises processes covering "Customer Care 2200, Service Management 2202 and Network Management 2204" for managing the hybrid network. The cited text discusses the processes of the ITU-T TMN standards and the Telecommunications Operations Map framework in terms of

management layers, functions, sub-processes, workflows, and lifecycles, which are *well known in the art.*

A careful reading of the cited sections (column 67, lines 31-60; column 68, lines 33-67; and column 79, lines 58-67) will confirm that the Bowman-Amuah reference only discusses processes of the ITU-T TMN standards (column 68 and line 12) and Telecommunications Operations Map framework (column 74, lines 44-45). Bowman-Amuah may **use** sub-processes of the processes covering "Customer Care 2200, Service Management 2202 and Network Management 2204" for implementing the hybrid network, as claimed in claims 6, 12, and 18 of the Bowman-Amuah reference.

On page 15 of the action, the Examiner states "Ngi discloses engineering the plurality of network architectures ……Since management processes are integral to the business of networks, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Ngi with the teachings of Bowman-Amuah to include engineering management processes as well in order to provide comprehensive business solutions.

Ngi discloses engineering plurality of network architectures for different network scenarios having various technologies (e.g., optical network). Each engineered network architecture (or network scenario) represents *one level of network*, that is, a network architecture, which carries the telecommunications services (e.g., voice, data, video, etc.) and delivers the services to end users, (Abstract; paragraphs [0007], [0015], [0018], [0021]-[0023], [0031]-[0033], [0055], [0060]-[0073], [0075], [0083], [0096]-[0098], [0100]-[0107], [0110]-[0114]; and Figures 14-16 of the Ngi reference).

Bowman-Amuah teaches *one level of network*, that is, "a hybrid network", which supports both circuit-switched (voice) and packet-switched (data) traffic to enable Service Providers to launch many new broadband data services, (Abstract and column 8, lines 10-30 of the Bowman-Amuah reference).

There is no motivation to modify the invention of Ngi with the teachings of Bowman-Amuah because both Ngi and Bowman-Amuah references teach the engineering of *one level of network*; that is, a network architecture that carries various services over various technologies. Moreover, Bowman-Amuah reference only discusses processes of the ITU-T TMN standards and Telecommunications Operations Map framework (FIGs 22-49 and claims 6, 12, and 18 of the Bowman-Amuah reference), which are *already known to one of ordinary skill in the art*, hence, no motivation for the modification suggested by the Examiner.

Accordingly, neither Ngi nor Bowman-Amuah references *separately or in combination* teach or suggest (d) engineering the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures, which is limitation (d) of independent claim 1 of the claimed invention.

Neither Ngi nor EURESCOM references teach (e) determining suppliers' management processes costs for the network management processes and the service and customer management processes:

As previously discussed, Ngi *does not* disclose limitation (e) of independent claim 1 of the claimed invention, (as acknowledged on page 6 of the office action dated April 29th, 2010).

On pages 17 and 44 of the present action, the Examiner acknowledges that Ngi *does not* disclose the specific management processes costs for the network management processes, and the service and customer management processes.

On pages 19 and 51 of the present action, the Examiner acknowledges that Ngi *does not* disclose the specific management processes.

Moreover, on pages 43, 44, 47, 51, 52, 54, 56, 58, 60, and 62 of the present action, the Examiner acknowledges that Ngi *does not* disclose determining the network management processes cost and the service and customer management processes cost or the costs of the sub-processes of the network management processes and the service and customer management

processes, as claimed in claims 15, 17, 19, and 21-26, which define additional elements for limitation (e) of independent claim 1 of the claimed invention.

On page 17 of the action, the Examiner asserts that EURESCOM teaches the specific management processes costs for the network management processes, and the service and customer management processes (D2, Volume 1: page 8, number 4, The operation, administration and maintenance costing is based on the identification and the classification of the operation, administration and maintenance processes and their respective drivers. A cost model is described for each or a group of processes depending on the level of accuracy required by the analysis of the project. Sometimes operation, administration and maintenance processes are simply referred to as operational processes with the related operational expenditure in the loss and profit account. At the modeling stage, the modeling might also be based on the nature of cost, i.e. human resources, utilities, material, etc.; D2, Volume 1: page 11, Table 1, identification of sources of running costs: Customer care management, Service & Service management, Network and system management.

EURESCOM discloses methodologies and models for engineering *one level of network*, that is, a network architecture which supports various services over various technologies, (EURESCOM (D1, Volume 2 and D2, Volume 1 and Volume 2)).

EURESCOM *does not* disclose any methodologies or models for engineering the network management processes and the service and customer management processes for managing the plurality of network architectures (which is, limitation (d) of independent claim 1 of the claimed invention), as articulated in **the referenced response** (Applicant's response dated 14 July 2010) and acknowledged by the Examiner in the present office action.

Accordingly, neither Ngi nor EURESCOM teach "*engineering*" the network management processes and the service and customer management processes for managing the plurality of network architectures, (which is limitation (d) of independent claim 1 of the claimed invention).

EURESCOM at (D2, Volume 1: page 8, number 4) teaches a highlight of the operation, administration and maintenance costing which is based on identification and

classification of the operation, administration and maintenance processes and their respective drivers, as shown in EURESCOM at (D2, Volume 1: page 11, Table 1).

EURESCOM at (D2, Volume 1: page 11, Table 1) discusses costs for *selected attributes* identified in Table 1, which are relevant to the 5 telecommunication layers of the Telecommunications Operations Map of the ITU-T TMN model and *well known in the art.* These *selected attributes* include OA&M, provisioning, churn, decommissioning, and leased facilities, which are relevant to the costs of the network architecture and technology (e.g., architecture costs to build, own, and grow).

EURESCOM at (D2, Volume 1: page 11, Table 1) discloses the following table for identification of sources of running costs:

Telecommunication layer	OA&M	Provisioning	Churn	Decommissioning	Leased facilities
Customer care management	*	*	*		
Service & Service management	*	*	*		*
Network and system management	*	*	*	*	*
Network elements & system elements	*	*	*	*	*
Physical network and infrastructure (cables, ducts, cabinets, buildings)	*	*		*	*

Table 1 Identification of sources of running costs

Table 1 illustrates 5 telecommunication layers of the Telecommunications Operations Map of the ITU-T TMN model and *selected attributes* from which the running costs for the methodologies and models in the project are originated. The focus, in these methodologies and models, is on the costs of the *selected attributes*, which consist of OA&M, provisioning, churn, decommissioning, and leased facilities, and represent attributes relevant to the network architecture and technology, (that is, architecture costs to build, own, and grow).

EURESCOM at (D2, Volume 1: page 11, Table 1) takes for grant that the processes of the network operations management for the Telecommunication Company *already exists* and lists (as shown in Table 1) the 5 telecommunication layers of the Telecommunications Operations Map of the ITU-T TMN model, which include customer care management, service & service management, network and system management, network elements & system elements,

and physical network and infrastructure (cables, ducts, cabinets, buildings), which are *well known in the art*.

Furthermore, EURESCOM at (D2, Volume 2: pages 32-33, paragraph 3) states that project P901 *does not* cover all the businesses of a Telecommunication Company. Therefore, *several cost categories are not considered as a part of running or OA&M costs and are not described in the EURESCOM (D1, Volume 2 and D2, Volume 1 and Volume 2) reference.* The business of managing the network (e.g., processes for network planning and development), managing the services (e.g., processes for service planning and development), and managing the customers (e.g., processes for a trouble ticketing, a service assurance, performance monitoring, and reporting) are excluded from the investment, operation, administration, and maintenance cost.

As previously discussed, EURESCOM *does not* engineer any processes or sub-processes for network operations management for managing the network architecture and technology for the Telecommunication Company. Hence, EURESCOM at (D2, Volume 1: page 11, Table 1) *does not* engineer the processes of customer care management, service & service management, network and system management for managing the network architecture and technology.

EURESCOM only calculates the costs for *selected attributes*, which include OA&M, provisioning, churn, decommissioning, and leased facilities, and are relevant to the network architecture and technology costs, (that is, architecture costs to build, own, and grow).

In EURESCOM at (D2, Volume 2: pages 36-42, Sections 3.5-3.7; pages 42-54, Section 4) the OA&M costs are divided into maintenance and O&A (operations and administration), wherein the maintenance comprises the cost of repair parts and the cost of repair work as function of the cost of labor, MTBR (mean time between repairs), and MTTR (mean time to repair). The operation & administration costs are included manually and typically *driven by services in terms of the number of customers or the number of critical network elements*.

EURESCOM at (D1, Volume 2: page 5, paragraph 1; page 14, paragraph 3 and D2, Volume 2: page 2, paragraph 1) teaches the cost evolution of network components is described as a function of time and the network architecture cost is described as a time series of cost evolution and volume of each network element. When *building new network architecture or upgrading an existing one*, an operator has a set of technologies to choose, see EURESCOM at

(D2, Volume 2: page 3, paragraph 2). EURESCOM at (D2, volume 2: pages 36-42, Sections 3.5-3.7; pages 42-54, Section 4) describes CAPEX and OPEX as time series.

The network architecture scenario, taught by EURESCOM, is defined in a shopping list, which indicates how the network architecture is rolled out during the study period. The shopping list defines the amount of equipment and services needed in the network architecture as a function of time. This is similar to Ngi (paragraphs [0007], [0015], [0016], [0018], [0021], [0022], and [0023]) where the network architecture is determined based on equipment list costs as produced by the link budget.

The methodologies and models, taught by EURESCOM, exclude the engineering of network management processes and service and customer management processes (limitation (d) of independent claim 1 of the claimed invention) and, hence, does not determine the costs for these processes (limitation (e) of independent claim 1 of the claimed invention). The engineering (that is, creating, building, constructing, manufacturing, producing) and costing of network, service, and customer management processes and sub-processes are required for configuring, provisioning, and replicating the network operations management for managing the network architecture and technology for the Telecommunication Company.

Accordingly, limitation (e) of independent claim 1, which recites "determining suppliers' management processes costs for the network management processes and the service and customer management processes", **is not found anywhere** in the EURESCOM reference.

On page 18 of the action, the Examiner states that since Ngi discloses determining operational costs, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Ngi with the teaching of EURESCOM to include specific management processes costs as well in order to provide comprehensive business solutions.

There is no motivation to modify the invention of Ngi with the teachings of EURESCOM because both Ngi and EURESCOM references teach the engineering of *one level of network*; that is, a network architecture that carries various services over various technologies. Furthermore, neither Ngi nor EURESCOM references teach (d) engineering the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures, (which is limitation (d)

of independent claim 1 of the claimed invention), and in turn, neither Ngi nor EURESCOM references teach determining the costs for these processes.

The Ngi and EURESCOM references only discuss determining operational costs for *selected attributes* which are relevant to the costs of network architecture and technology (e.g., architecture costs to build, own, and grow).

Further, customer care management, service & service management, network and system management, network elements & system elements, and physical network and infrastructure (cables, ducts, cabinets, buildings) at EURESCOM (D2, Volume 1: page 11, Table 1), are the 5 telecommunication layers of the Telecommunications Operations Map of the ITU-T TMN model, which are *well known to one of ordinary skill in the art.*

Consequently, neither Ngi nor EURESCOM references *separately or in combination* teach or suggest limitation (e) of independent claim 1 of the claimed invention. Moreover, neither Ngi nor EURESCOM references *expressly or implicitly* suggest limitation (e) of independent claim 1. The combination of Ngi and EURESCOM references *does not* produce the claimed invention, as claimed in independent claims 1 of the claimed invention.

Neither Ngi nor Bowman-Amuah references teach (f) validating and calibrating the data and options and the costs for the plurality of network architectures, the network management processes, and the service and customer management processes;

On pages 11 and 32 of the action, the Examiner states "Ngi discloses "What-if" analysis on business parameters and network metrics. What-if analysis implies that if results are unsatisfactory, adjustment are made. Ngi clearly discloses adjusting or standardizing or determining the graduation of, that is "calibrating" data and options and the costs".

"Calibrating" data, options, etc., is *well known* to one of ordinary skill in the art.

Ngi *does not* disclose limitation (f) of independent claim 1 of the claimed invention, which recites "(f) validating and calibrating the data and options and the costs for the plurality of network architectures, the network management processes, and the service and customer

management processes", (as acknowledged on page 6 of the office action dated April 29th, 2010).

Moreover, on pages 11 and 32 of the present action, the Examiner states "Although Ngi does not explicitly teach applying the calibrating to the network management processes, and service and customer management processes, these **processes** are taught by Bowman-Amuah (column 67, lines 31-60, a number of operations management processes *are shown to be provided covering* Customer Care 2200, Service Management 2202 and Network Management 2204.).

The processes which are taught by Bowman-Amuah (column 67, lines 31-60, a number of operations management processes are shown to be provided covering Customer Care 2200, Service Management 2202 and Network Management 2204.), are processes of the ITU-T TMN standards and Telecommunications Operations Map framework, (column 68, line 12 and column 74, lines 44-45 of the Bowman-Amuah reference), and *well known to one of ordinary skill in the art*.

On pages 11 and 32 of the present action, the Examiner asserts that a person having ordinary skill in the art at the time of invention would have found it obvious to calibrate the data, options, and costs as taught by Ngi for the network management processes, and service and customer management processes taught by Bowman-Amuah, in order to provide enhanced network processes.

Since Ngi does not explicitly teach applying the "calibrating" to the network management processes, and service and customer management processes; and Bowman-Amuah only discusses processes of the ITU-T TMN standards and Telecommunications Operations Map framework, (column 68, line 12 and column 74, lines 44-45 of the Bowman-Amuah reference), which are *well known in the art*, it is improbable to conclude that the combination of Ngi and Bowman-Amuah references discloses the calibration of the data, options, and costs for the network management processes, and service and customer management processes. Hence, there is no motivation to modify Ngi with the processes taught by Bowman-Amuah, as suggested by the Examiner.

Furthermore, the combination of Ngi and Bowman-Amuah references *does not* engineer (or determine the costs for) any network management processes, or service and customer management processes and, hence, does not validate or calibrate any data, options or costs relevant to these processes and sub-processes.

The combination of Ngi and Bowman-Amuah references does not disclose "validating and calibrating the data and options and the costs for the network management processes, and the service and customer management processes because neither Ngi nor Bowman-Amuah reference discloses engineering (or determining the costs for) a management network (that is, network operations management) which comprises network management processes, and service and customer management processes.

Accordingly, neither Ngi nor Bowman-Amuah references *separately or in combination* teach or suggest the limitation (f) of independent claim 1 of the claimed invention, which recites "validating and calibrating the data and options and the costs for the plurality of network architectures, the network management processes, and the service and customer management processes".

In summary, there is no motivation to combine the teachings of Ngi with Bowman-Amuah or the teachings of Ngi with EURESCOM references, as suggested by the Examiner, because the processes of the ITU-T TMN standards and Telecommunications Operations Map framework, in both the Bowman-Amuah and EURESCOM references, *are well known to one of ordinary skill in the art.*

The Ngi, Bowman-Amuah, and EURESCOM references *do not* disclose or claim engineering the network management processes and service and customer management processes for managing the network architecture.

The Ngi, Bowman-Amuah, and EURESCOM references *do not* disclose or claim determining costs for the network management processes and service and customer management processes for managing the network architecture. The Ngi and EURESCOM references only discuss determining operational costs for *selected attributes* which are relevant to the costs of network architecture and technology (e.g., architecture costs to build, own, and grow). The Bowman-Amuah reference *does not* discuss costs for any management processes or sub-processes.

The combination of Ngi, Bowman-Amuah, and EURESCOM references does not engineer the network management processes and service and customer management processes for managing the network architecture (limitation (d) of independent claim 1); and does not determine the costs for the network management processes and service and customer management processes for managing the network architecture (limitation (e) of independent claim 1). Consequently, the combination of Ngi, Bowman-Amuah, and EURESCOM references does not validate or calibrate data, options, and costs for the network management processes and service and customer management processes (limitation (f) of independent claim 1).

Accordingly, the limitations (d), (e) and (f) of independent claim 1, where (d) *engineering* the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures; (e) *determining* suppliers' management processes costs for the network management processes and the service and customer management processes; and (f) *validating and calibrating* the data and options and the costs for the plurality of network architectures, the network management processes, and the service and customer management processes, respectively, **are not found anywhere** in the cited prior art references.

None of the cited prior art references *separately or in combination* teach or suggest the limitations (d), (e), and (f) of independent claim 1 of the claimed invention. Moreover, none of the cited prior art references *expressly or implicitly* suggest the limitations (d), (e), and (f) of independent claim 1. The combination of Ngi, Bowman-Amuah, and EURESCOM references **does not** produce the claimed invention, as claimed in independent claim 1of the present application.

To establish a *prima facie* case of obviousness of a claimed invention, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) - MPEP §706.02(j).

In view of the utter failure of Ngi to describe the numerous elements in Applicant's independent claim 1 discussed above, and the failure of the Bowman-Amuah and EURESCOM

references to cure the deficiencies in the Ngi reference, the subject matter of independent claim 1 cannot be obvious.

Regarding claims 2-10:

Claims 2-10 are all directly or ultimately dependent from independent claim 1.

If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir 1988) – MPEP 2143.03.

Since independent claim 1 is nonobvious over Ngi in view of Bowman-Amuah, and further in view of EURESCOM for the reasons set forth above, dependent claims 2-10 are likewise nonobvious.

Claims 11-14:

On page 34 of the action, claims 11-14 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Ngi in view of Bowman-Amuah in view of EURESCOM (D1, Volume 2 and D2, Volume 1 and Volume 2), and further in view of Arbel et al., (US 2004/0008673) (hereinafter referred to as **Arbel**).

Regarding claims 11-14:

The combination of Ngi, Bowman-Amuah, EURESCOM (D1 Volume 2 and D2 Volume 1 and Volume 2) and Arbel references **does not** produce the elements in claims 11-14 of the claimed invention, as will be described below.

On page 12 of the office action dated April 29th, 2010, the Examiner (Examiner ANTONIENKO, DEBRA L) acknowledges that neither Ngi nor EURESCOM disclose costs relating to footprints.

On pages 34 and 35 of the present action, the Examiner acknowledges that Ngi and EURESCOM references do not disclose costs relating to footprints.

Further, the Bowman-Amuah reference does not disclose costs relating to footprints.

Accordingly, the combination of Ngi, Bowman-Amuah, and EURESCOM references does not disclose costs relating to footprints.

Arbel at ([0025] and [0074]) has been cited for allegedly disclosing costs relating to footprints. The focus of Arbel teaching is on the internal node architecture and it is *well known in the art* that node characteristics or attributes comprise cost, footprint, and power consumption of the node.

Claims 11-14 define additional elements for limitation (c) of independent claim 1 of the claimed invention, which include *footprint costs* for network elements and equipment in the network architecture.

Claims 11-14 are all directly or ultimately dependent from independent claim 1 of the claimed invention.

If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir 1988) – MPEP 2143.03.

Since independent claim 1 is nonobvious under 35 U.S.C. 103 over Ngi in view of Bowman-Amuah, and further in view of EURESCOM for the reasons set forth above; claims 11-14 are all directly or ultimately dependent from independent claim1; and Arbel *does not* cure the numerous deficiencies of Ngi, Bowman-Amuah, and EURESCOM references, hence, claims 11-14 are likewise nonobvious.

Claims 15-19, 21-26, and 37:

On page 42 of the action, claims 15-19, 21-26, and 37 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Ngi in view of Bowman-Amuah in view of EURESCOM (D1, Volume 2 and D2, Volume 1 and Volume 2), and further in view of Mobile LRIC model specification (hereinafter referred to as **Mobile**).

Regarding claims 15-19, 21-26, and 37:

Claim 37 has been canceled without prejudice.

The combination of Ngi, Bowman-Amuah, EURESCOM, and Mobile references *does not* produce the elements in claims 15-19 and 21-26 of the claimed invention, as will be described below.

As previously discussed, Ngi *does not* disclose limitations (c), (d), (e), and (f) of independent claim 1 of the claimed invention, (as acknowledged on page 6 of the office action dated April 29th, 2010).

Ngi *does not* teach limitation (d) of independent claim 1 of the claimed invention, (as acknowledged on page 14 of the present office action).

Ngi *does not* engineer the network management processes and service and customer management processes or their associated sub-processes, as claimed in claims 6, 16, 18 and 21-26, which define additional elements for limitation (d) of independent claim 1 of the claimed invention, (as acknowledged on pages 26, 46, 49, 52, 54, 56, 58, 60, and 62 of the present office action).

Ngi *does not* disclose the specific management processes costs for the network management processes, and the service and customer management processes, (as acknowledged on pages 17 and 44 of the present action).

Ngi *does not* disclose the specific management processes, (as acknowledged on pages 19 and 51 of the present action).

Moreover, Ngi *does not* disclose determining the network management processes cost and the service and customer management processes cost or the costs of the sub-processes of the network management processes and the service and customer management processes, as claimed in claims 15, 17, 19, and 21-26, which define additional elements for limitation (e) of independent claim 1 of the claimed invention, (as acknowledged on pages 43, 44, 47, 51, 52, 54, 56, 58, 60, and 62 of the present action).

On page 43 of the present action, the Examiner acknowledges that "… Ngi does not disclose wherein the instruction (e) comprise……to determine a network management processes cost….determine a service and customer management processes cost,…..determine a management processes cost……".

On pages 44-45 of the present action, the Examiner states: "EURESCOM teaches identification of the sources of running costs such as customer care management, service & service management, network and system management. ….. EURESCOM further characterizes these costs as related to maintenance processes, operational processes … EURESCOM further discloses "costing the network elements" (D2, Volume 2: page 68)".

As previously discussed, EURESCOM does not disclose any methodologies or models for "*engineering*" any management processes or sub-processes for managing the network architecture, as articulated in **the referenced response** (Applicant's response dated 14 July 2010) and acknowledged by the Examiner in the present office action. Hence, EURESCOM *does not* disclose (d) engineering the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures, which is limitation (d) of independent claim 1 of the claimed invention.

EURESCOM at (D2, Volume 1: page 11, Table 1) takes for grant that the network operations management for the Telecommunication Company *already exists* including customer care management, service & service management, network and system management…. EURESCOM, then, calculates *costs of selected attributes* which are relevant to the network architecture and technology, (i.e., architecture costs to build, own and grow), which is similar to the Ngi's reference.

The Examiner, on pages 45-46 of the present action, states that Mobile teaches cost categories which include network ….."

The Applicant acknowledges that Mobile teaches *several cost categories* which are related to existing network management center including costs for network elements, equipment, and technology (slides 29, 258, 263, and 264 of Mobile). Mobile (as is the case in Ngi,

Bowman-Amuah, and EURESCOM references) *does not* teach the ***engineering of the management processes in the network management center*** for managing the network elements and equipment of the network architecture and technology.

The Ngi, EURESCOM, and Mobile references determine costs of *selected attributes*, which are relevant to network element, network architecture, and technology, (i.e., architecture costs to build, own and grow).

The Bowman-Amuah at (columns 67, lines 31-67; columns 68- 82; column 83, lines 1-42; and FIGs 22- 49), EURESCOM at (D2, Volume 1: page 11, Table 1), and Mobile at (slides 29, 258, 263, and 264) only discuss processes of the ITU-T TMN standards and Telecommunications operations Map framework, which are *well known to one of ordinary skill in the art.*

None of these cited references disclose engineering processes or sub-processes of the network management center (that is, network operations management) for managing the network architecture. Further, determining several cost categories for network elements or network architecture are measured values, which are used in a comparative analysis of various costs of network architecture, and *do not* provide engineered processes and sub-processes of the network, service, and customer management center or environment for managing the network architecture.

The engineered processes and sub-processes of the network, service, and customer management form and replicate network operations management (that is, network management center) for managing the network architecture. Determining the costs for these processes and sub-processes, (which are engineered for managing the network architecture), implies determining the costs for the engineered processes and sub-processes of the network, service, and customer management, which form and replicate the network operations management (that is, the network management center).

The Ngi, Bowman-Amuah, EURESCOM, and Mobile references take for grant that the network management center (slide 29 of Mobile), the telecommunication layers (EURESCOM at (D2, Volume 1: page 11, Table 1)) and the network operations management (Bowman-Amuah at (columns 67, lines 31-67; columns 68- 82; column 83, lines 1-42; and FIGs 22- 49)) for the Telecommunications Company (or Service Provider) *already exists* and the processes and sub-processes of the network operations management (the network management center) may be **used**

for implementing the network architecture. In addition, the processes, taught by Ngi, Bowman-Amuah, EURESCOM, and Mobile references, are processes of the ITU-T TMN standards and Telecommunications Operations Map framework, which are *well known to one of ordinary skill in the art.*

Claims 15-19 and 21-26 define additional elements for limitations (d) and (e) of independent claim 1 of the claimed invention.

Claims 15-19 and 21-26 are all directly or ultimately dependent from independent claim 1 of the claimed invention.

If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. ***In re Fine***, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir 1988) – MPEP 2143.03.

Since independent claim 1 is nonobvious under 35 U.S.C. 103 over Ngi in view of Bowman-Amuah, and further in view of EURESCOM for the reasons set forth above; claims 15-19 and 21-26 are all directly or ultimately dependent from independent claim1; and Mobile does not cure the numerous deficiencies of Ngi, Bowman-Amuah, and EURESCOM references, hence, claims 15-19 and 21-26 are likewise nonobvious.

Elements of the claimed invention and the cited prior art references are tabulated below.

Elements recited	The claimed Invention (10/668, 133)	Ngi	Combination of Ngi and Bowman-Amuah	Combination of Ngi and EURESCON	Combination of Ngi, Bowman-Amuah and EURESCON	Combination of Ngi, Bowman-Amuah, EURESCON and Arbel	Combination of Ngi, Bowman-Amuah, EURESCON and Mobile
business solutions comprising alternative network architectures for a telecommunications network	No	Yes	Yes	Yes	Yes	Yes	Yes
business solutions comprising alternative network architectures and management processes for a telecommunications network (claim 1)	Yes	No	No	No	No	No	No
(a) receiving data and options for plurality of network architectures; (claims 1- 3)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(a) receiving data and options for network management processes and service and customer management processes (claims 1- 3)	Yes	No	No	No	No	No	No
(b) engineering the plurality of network architectures (Claims 1, 5)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(c) determining suppliers' equipment costs for said plurality of network architectures, including footprint costs; (claims 1, 8, 10-14)	Yes	No	No	No	No	Yes	No
(d) engineering the network management processes and the service and customer management processes, based on the data and options of (a), for managing said plurality of network architectures; (Claims 1-3, 6, 16, 18, 21-26)	Yes	No	No	No	No	No	No

(e) determining suppliers' management processes costs for the network management processes and the service and customer management processes (claims 1-3, 15, 17, 19, 21-26)	Yes	No	No	No	No	No	No
(f) validating and calibrating the data and options and the costs for the plurality of network architectures, the network management processes, and the service and customer management processes (Claims 1, 9)	Yes	No	No	No	No	No	No
(g) determining, based on the costs of the plurality of network architectures, business parameters for the business solutions; (claim 1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(g) determining, based on the costs of the plurality of network architectures and the network management processes and the service and customer management processes, business parameters for the business solutions; (claims 1, 4)	Yes	No	No	No	No	No	No
(h) storing and displaying the business parameters for the business solutions for the telecommunications network (claims 1, 4, 7).	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Conclusion

A careful analysis of the elements of the claimed invention and the cited prior art references (as summarized in the preceding table) show that the combination of Ngi, Bowman-Amuah, and EURESCOM references does not teach limitations (d), (e), and (f) of independent claim 1 of the claimed invention.

The Bowman-Amuah, EURESCOM, Arbel, and Mobile references do not cure the numerous deficiencies of the Ngi reference.

The combination of Ngi, Bowman-Amuah, and EURESCOM references does not show or suggest every limitation in the claimed invention. Hence, all rejections and objections of the Examiner are traversed.

Claims 1-19, 21-26, and 31-38 are pending in this application.

Claims 20 and 27-30 and 39 were previously canceled.

Claims 31-38 have been canceled without prejudice.

Reconsideration of all pending claims is respectfully requested.

In view of the above amendments and remarks, and having dealt with all of the matters raised by the Examiner, early favorable reconsideration of this application is respectfully requested.

Respectfully submitted,

/Omayma E. Moharram/

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